6-2018

Umphlett QCI June 2018

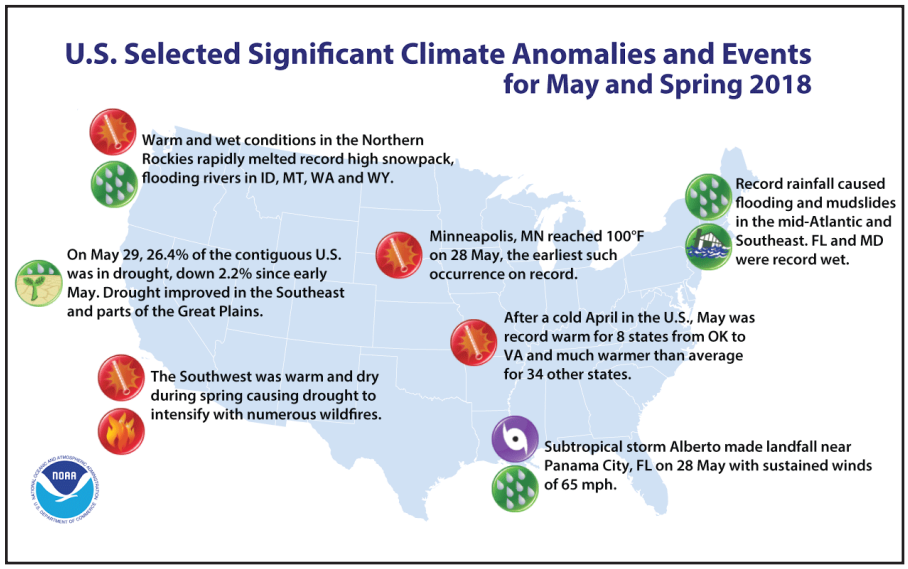
Natalie Umphlett

Quarterly Climate Impacts and Outlook

Missouri River Basin

June 2018

National – *Significant Events for March - May 2018*



The average U.S. temperature during May was 65.4°F, 5.2°F above average, and the warmest on record. The spring average U.S. temperature was 52.4°F, 1.5°F above average. The May U.S. precipitation was 2.97 inches, 0.06 inch above average. The spring average U.S. precipitation was 7.91 inches, 0.03 inch below average.

For more information, please see: https://www.ncdc.noaa.gov/sotc.

Highlights for the Basin

While the headlining story this season was the back-to-back temperature extremes of April and May, both flooding and drought impacted the region.

The April 13-15 blizzard brought record-breaking snowfall and impacted travel in many states, as portions of I-29, I-70, I-80, and I-90 were closed.

In late April and early May, high winds combined with dry, freshly tilled soils reduced visibilities, causing numerous accidents on I-80 in eastern Nebraska.

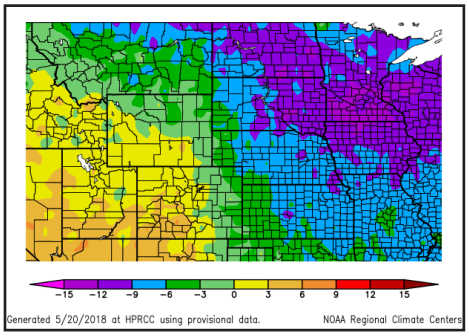
Torrential rains and subsequent flooding destroyed a dam at Lake Hiddenwood Recreation Area in north-central South Dakota in mid-May.

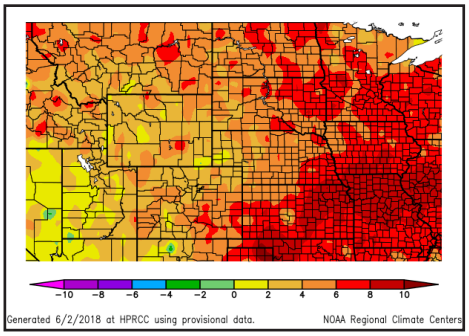
The severe weather season got off to a slow start, with the first tornadoes of the season occurring in May.

Regional – *Climate Overview for March - May 2018*

Temperature Anomalies

Departure from Normal Temperature (°F)
April (left) and May (right) 2018

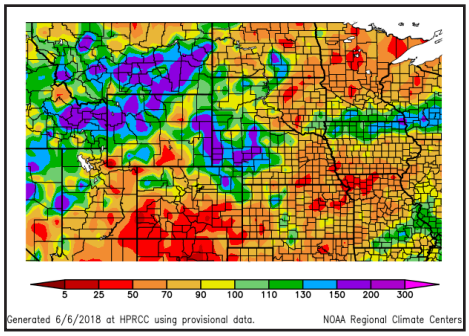




Generally, average temperatures were below normal to the north and above normal to the south this spring. But, these averages masked the extremes that occurred, especially during April and May. In April, the majority of the region was well below normal and many states ranked in the top 5 coldest on record: KS, MO, NE, SD (2nd); ND (5th). Meanwhile, May was a complete reversal, with many of the same states ranking in the top 5 warmest on record: MO (1st); CO, KS (2nd); NE (4th); SD (5th). For some locations, this meant a 20°F+ difference in average temperature between the two months, which is rare. In addition to monthly extremes, numerous daily records were set and some locations set new records for the most number of days at or above 90°F in the month of May.

Precipitation Anomalies

Percent of Normal Precipitation
Spring 2018



Precipitation varied across the region this season. Generally, southern and eastern areas of the region were on the dry side, but areas of southern Montana, northern and eastern Wyoming, and the panhandle of Nebraska were quite wet. With this contrast in precipitation, some locations ranked in the top 10 wettest springs on record, while others ranked in the top 10 driest.

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Regional – *Impacts for March - May 2018*

Water Resources

Missouri Basin snowpack peaked in April and rapidly declined in May, causing high streamflows in upper portions of the Basin. In Montana, more than 50 stream gauges set new monthly flow records for May and flooding was so widespread that Governor Steve Bullock declared a statewide flooding emergency. According to the U.S. Army Corps of Engineers, above-average releases are expected from all system projects this summer to slowly evacuate stored flood waters.

Meanwhile, drought conditions intensified across southern portions of Colorado and Kansas, with impacts to agriculture, water resources, and recreation and tourism. Several fires in these drought-afflicted areas broke out this spring, forcing evacuations, destroying homes, and killing livestock. Drought also intensified in northern portions of the Dakotas.

Agriculture

The cold start to spring not only meant a slow green-up, but also delays in spring planting as soils were slow to warm. The extreme warmth in May, however, allowed producers to make significant planting progress, especially for corn and soybeans. Not all impacts were positive, as winter wheat quality declined due to high heat and dry conditions. Additionally, some cattle deaths were reported in South Dakota where unseasonably hot and humid conditions occurred.

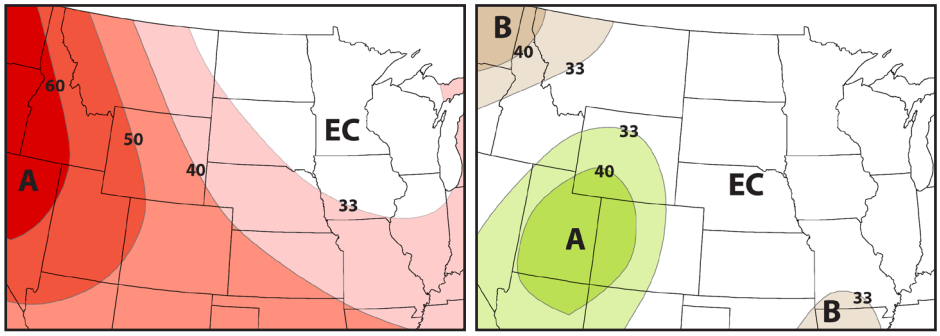
Above: Big Sioux River in Sioux Falls, SD, photo courtesy Natalie Umphlett, HPRCC (left); Tornado near Laramie, WY, photo courtesy Gavin Rush (middle); Heat-stressed wheat in Manhattan, KS, photo courtesy Romulo Lollato, K-State Research and Extension (right).

Regional – *Outlook for July - September 2018*

Temperature

Precipitation

Outlooks for July - September 2018



EC: Equal chances of above, near, or below normal

A: Above normal, B: Below normal

According to NOAA's Climate Prediction Center, La Niña conditions weakened this spring, with a transition to ENSO-neutral conditions in May. ENSO-neutral conditions are favored through the summer, but with increasing chances for the development of El Niño conditions this fall and winter, an El Niño Watch has been issued. Over the next three months, above-normal temperatures are favored for the majority of the region, with the highest chances in western areas of Colorado, Montana, and Wyoming. Meanwhile, below-normal precipitation is favored in northwestern Montana and southern Missouri. Drought conditions could improve in areas of the Four Corners region, where above-normal precipitation is favored.

MO River Basin Partners

High Plains Regional Climate Center
www.hprcc.unl.edu

National Drought Mitigation Center
http://drought.unl.edu/

National Integrated Drought Information System
https://www.drought.gov/

NOAA NCEI
www.ncdc.noaa.gov

NOAA NWS- Central Region
www.crh.noaa.gov/crh

NOAA NWS Climate Prediction Center
www.cpc.ncep.noaa.gov

NOAA NWS Missouri Basin River Forecast Center
www.crh.noaa.gov/mbrfc

American Association of State Climatologists
https://www.stateclimate.org/

U.S. Army Corps of Engineers
www.usace.army.mil

U.S. Bureau of Reclamation
https://www.usbr.gov/

USDA Natural Resources Conservation Service
www.nrcs.usda.gov

USDA Northern Plains Climate Hub
www.climatehubs.oce.usda.gov

Western Governors' Association
http://westgov.org

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